4/19/18



Watershed Assessment of Disturbed Streams Dusty Kimbrow Watershed Coordinator - City of Auburn, Alabama Stream Assessment Workshop April, 17 2018

City of Auburr

Watershed Assessment of Disturbed Streams Presentation Outline

• City of Auburn Watershed Division Operations

• Watershed Assessment: Parkerson Mill Creek

• Local Watersheds & Impairments









City of Auburn Watershed Division Operations

Manage the City's MS4

- 1. Public education & involvement
- 2. Illicit discharge detection and elimination
 - Illicit discharge ordinance
 - Water quality monitoring
 - Outfall mapping and screening
- 3. Construction site stormwater runoff control
 - Erosion & sediment control ordinance
 - Review development plans for proper BMP design
 - Construction site inspections for proper BMP installation
- 4. Post-construction stormwater management
 - Development must provide pollutant treatment of the first 1.2 in. of rainfall 60% reduction in pathogens in Parkerson Mill Creek basin

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- Post-development peak Q must be less than or equal to pre-development peak Q
- 5. Pollution prevention/good housekeeping for municipal operations
 - Stream buffer ordinance



Watershed Assessment: Parkerson Mill Creek

Watershed Approach

Knowledge of the watershed is KEY!

- Land use & history
- Geology
- Sediment sources
- Streamflow
- Infrastructure
- Water quality concerns





• Can lead to large gullies







Watershed Assessment: Parkerson Mill Creek



Paleo-Channel Assessment





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Watershed Assessment of Disturbed Streams

Watershed Assessment: Parkerson Mill Creek



Water Quality Concerns

Pathogens

- Aging sewer infrastructure
- Septic tank systems
- Pet waste
- Agriculture Wildlife
- Bank failure
 - Impervious surfaces
 - Pipe flow
 - Compacted earth fill
- Nutrients
 - Residential fertilizers
 - Pet waste
 - Wildlife
 - Agriculture
 - Septic tank systems





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Watershed Assessment: Parkerson Mill Creek

What infrastructure is near the stream and why?

Gravity Sewers

- Centuries-old technology
 - Cost-effective and low maintenance way to collect wastewater

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- Uses the natural slope of the stream valley
- Auburn stream valleys average 4-5% slope





Watershed Assessment: Parkerson Mill Creek



Watershed Assessment of Disturbed Streams

Watershed Assessment: Parkerson Mill Creek

Traditional hard-armoring

- Provides bank protection without an ecological benefit
- Prone to failure without proper design & installation
- Rip-rap

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- Concrete/grout
- Gabions
- Retaining walls





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Watershed Assessment: Parkerson Mill Creek

Natural channel design (bio-engineering)

- Provides bank protection <u>with an ecological benefit</u>
- Also prone to failure without proper design & installation
- Design & installation learning curve
- Examples
 - Rock or log vanes
 - Root balls
 - Brush mattressing
 - Coconut fiber matting
 - Live stakes, native grasses, herbaceous plants





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